AMENDMENTS TO THE CLAIMS

Please amend claims 1, 16, and 22 such that the status of the claims is as follows:

1. (Currently amended) A magnetoresistive sensor comprising:

a tri-layer reader stack including a first ferromagnetic layer, a second ferromagnetic layer, and a magnetoresistive layer positioned therebetween; and

biasing means positioned with respect to the tri-layer reader stack and proximate to a ~~front~~ medium confronting surface of the magnetoresistive sensor for biasing a magnetization of the first ferromagnetic layer substantially orthogonal to a magnetization of the second ferromagnetic layer.

2. (Original) The magnetoresistive sensor of claim 1, further comprising:

nonmagnetic spacer means positioned between the tri-layer stack and the biasing means.

3. (Withdrawn) The magnetoresistive sensor of claim 2, wherein the nonmagnetic spacer means is made of a material which enhances specular electron scattering.

4. (Original) The magnetoresistive sensor of claim 1, wherein the magnetization of the first ferromagnetic layer is antiparallel to the magnetization of the second ferromagnetic layer in a quiescent state.

5. (Withdrawn) The magnetoresistive sensor of claim 4, wherein the quiescent state magnetization of the first and second ferromagnetic layers are antiparallel due to shape anisotropy.

6. (Original) The magnetoresistive sensor of claim 4, wherein a biasing direction of the biasing means is generally perpendicular to the magnetization of the first and second ferromagnetic layers in the quiescent state.

7. (Original) The magnetoresistive sensor of claim 1, wherein the magnetization of the first ferromagnetic layer and the magnetization of the second ferromagnetic layer rotate in response to flux emanated from a rotating disc.

8. (Withdrawn) The magnetoresistive sensor of claim 1, wherein the biasing means is at least one permanent magnet layer having a shape anisotropy induced magnetization direction.

9. (Withdrawn) The magnetoresistive sensor of claim 1, wherein the biasing means is at least one permanent magnet layer comprising a high coercivity ferromagnetic material.

10. (Withdrawn) The magnetoresistive sensor of claim 1, wherein the biasing means is a layer of antiferromagnetic material.

11. (Withdrawn) The magnetoresistive sensor of claim 1, wherein the biasing means is a bilayer including a layer of antiferromagnetic material and a layer of ferromagnetic material.

12. (Withdrawn) The magnetoresistive sensor of claim 1, wherein the biasing means produces a sense current induced magnetic field.

13. (Withdrawn) The magnetoresistive sensor of claim 1, wherein the biasing means is an antiferromagnetic/ferromagnetic/antiferromagnetic stack.

14. (Original) The magnetoresistive sensor of claim 1, wherein the magnetoresistive layer is a nonmagnetic metal.

15. (Original) The magnetoresistive sensor of claim 1, wherein the magnetoresistive layer is a tunnel barrier.

16. (Currently amended) A magnetoresistive sensor comprising:

a first ferromagnetic free layer;

a second ferromagnetic free layer having a quiescent state magnetization substantially antiparallel to a quiescent state magnetization of the first ferromagnetic free layer;

a magnetoresistive layer located between the first and second ferromagnetic free layers; and

at least one biasing structure positioned with respect to the first and second ferromagnetic free layers and proximate to a ~~front~~ <u>medium confronting</u> surface of the magnetoresistive sensor to bias a magnetization of the first ferromagnetic free layer substantially orthogonal to a magnetization of the second ferromagnetic free layer.

17. (Withdrawn) The magnetoresistive sensor of claim 16, wherein the at least one biasing structure is a permanent magnet.

18. (Withdrawn) The magnetoresistive sensor of claim 17, wherein the permanent magnet is made of a material selected from the group consisting of CoCrPt, CoPt and a CoPt/SiO_2 composite.

19. (Withdrawn) The magnetoresistive sensor of claim 16, wherein the at least one biasing structure is a soft bias antiferromagnetic/ferromagnetic/antiferromagnetic multilayer structure.

20. (Withdrawn) The magnetoresistive sensor of claim 19, wherein the antiferromagnetic layers are made of a material selected from the group consisting of IrMn, NiO, and Fe_3O_4, and wherein the

ferromagnetic layer is made of a material selected from the group consisting of CoFe, Fe_2O_3, and a CoFe/HfO composite.

21. (Withdrawn) The magnetoresistive sensor of claim 16, wherein a magnetization of the at least one biasing structure is generally perpendicular to the quiescent state magnetization of the first and second ferromagnetic free layers.

22. (Previously presented) The magnetoresistive sensor of claim 16, wherein the magnetization of the first ferromagnetic free layer and the magnetization of the second ferromagnetic free layer rotate in response to external magnetic flux.

23. (Original) The magnetoresistive sensor of claim 16, wherein the magnetoresistive layer is a metal.

24. (Original) The magnetoresistive sensor of claim 16, wherein the magnetoresistive layer is a tunnel barrier.

25. (Original) The magnetoresistive sensor of claim 16, wherein the at least one biasing structure is separated from the first and second ferromagnetic free layers by a nonmagnetic spacer layer.

26. (Withdrawn) The magnetoresistive sensor of claim 25, wherein the nonmagnetic spacer layer is made of a material which enhances specular electron scattering.

27. (Canceled)